



1 / 8

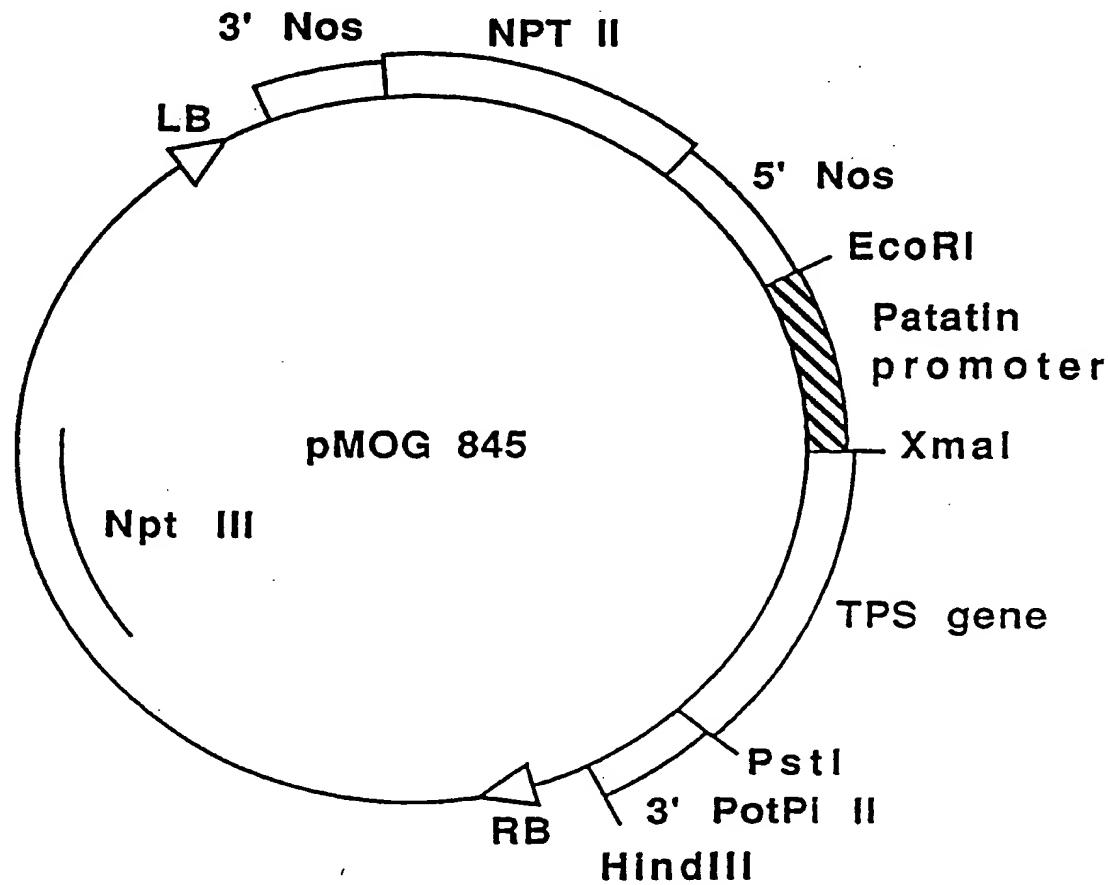


FIG. 1



2/8

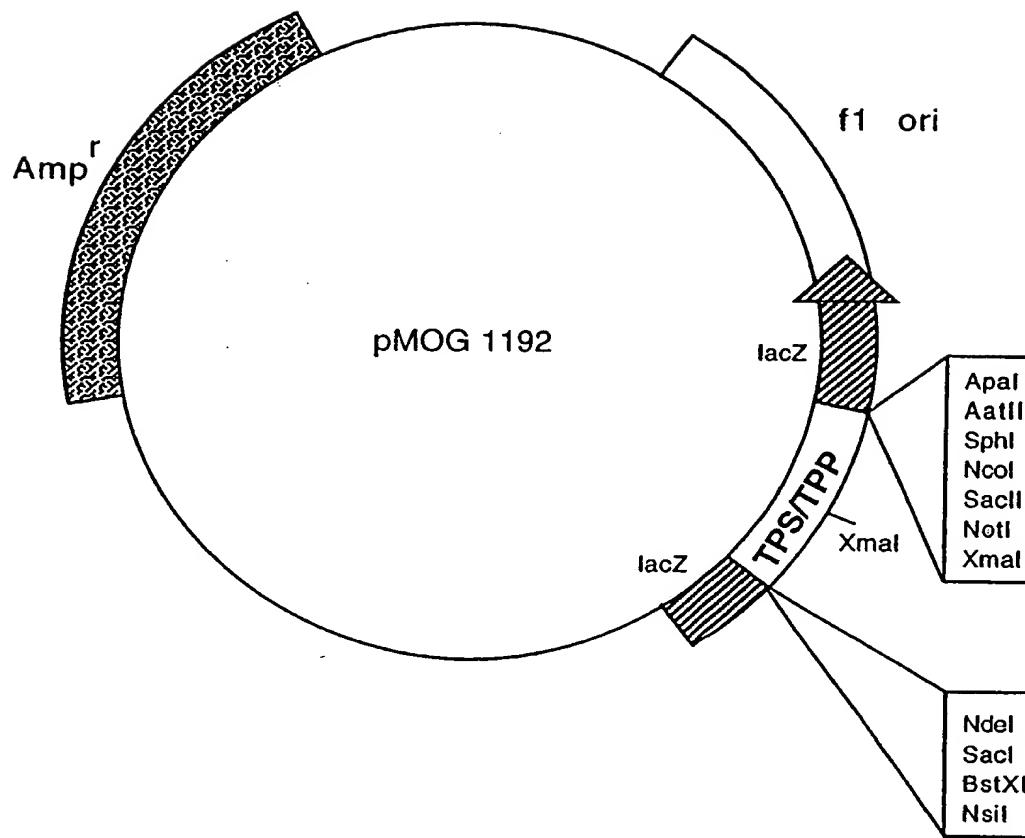


FIG. 2



08/779,460 .
Replacement Sheet

3 / 8

AA	238	Yeast	P Y A V P G G R F N E L Y G W D S Y M N A L G L L E A N K T D V A R G M V
	1	Rabbit	P F I V P G G R F V E F Y Y W D S Y W V M E G L L L S E M A E T V K G M L
		E. coll	P Y V V P G G R F R E V Y Y W D S Y F T M L G L A E S G H W D K V A D M V
		SIIkw.	G F I V P G G R F K E I Y Y W D A Y W I I E G L L I T D M T E T A K G M I
			Tase25.....

Tase24

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308	AAA	Yeast	E H F I F E I N H Y G K / L N A N R P S Y Y L C R S Q P P F L T E M	1
		Rabbit	Q N F L D L V T A Y G H / P N G G R V Y Y L Q R S Q P P F L T E M	
		E. coli	A N F A H E I D T Y G H / P N G N R S Y Y L S R S Q P P F A L M	
		SIlikw.	E N L I E L L Y K F G H / P N G S R W Y Y Q E R S Q P P F A L M	
			T a s e 2 6 <-----	
				664
		AAA		1
		Yeast	A A T E G F G W V T N A R Y I L L G L K Y M N - - -	
		Rabbit	- - - E V Q E G F G W T N G V A L M L D - - -	
		E. coli	- - - P L Q D G F G W T N G V T L K M L D - - -	
		SIlikw.	- - - V V Q S G F G W T N G V V L E F I N - - -	
			T a s e 2 7 <-----	
				64

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G
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E



Comparison of trehalase sequences derived from different species.

Ecoli2treh	1	MLNQKIQN PNPDELMIEV DLCYELDPYE
Ecolitreha		MKSPAPS RPQKMALIPA CIFLFCFAALS
Bommotreha		MLRF LLLVGLTTV.
Tenmotreha		MIPF LLMVAFADTV
Rabbitreha		MPGSTWELHL LLLLGLG...
Potatotreha		MGKAIIFM IFTMSMNMIK
Yeasttreha	MSVFDNVSPF	KKTGFGKLQQ TRRGSEDDTY SSSQGNRRFF IEDVDKTLNE
Ecoli2treh	51	ELFEH
Ecolitreha	LKLDEMIEAE	PEPEMIEGLP ASDALTPADR YL...
Bommotreha	VQAEETPVTP	QPPDILLG...
Tenmotreha	..IADDLPPT	CIRPVY...
Rabbitreha	LQVSAQSQPS	CDSKVY...
Potatotreha	LGSEQALPPP	CESQIY...
Yeasttreha	AETCKSIDKG	PVIPTT...
	LLAAEADTDKN	YQITIEDTGP KVLKVGTA NS YGYKHINIRG TYMLSNLQEE
Ecoli2treh	101	150
Ecolitreha	VQSAKIFP	DSKTFP DCAPKMDPLD ILIRYRKVRR HRDF...
Bommotreha	VQNAKLFP	DQKTF AAVPNNSDPLM ILADYRMQQN QSGF...
Tenmotreha	VQMARLYP	DSKTFV DFQMRKDENA TLSAFQELLD RTNHNPTKED
Rabbitreha	VEMSRIFN	DSKTFV ELKMINDEQT TLENFDNFLR DTNHRTRAD
Potatotreha	VQMARLYP	DDKQFV DMPLSTAPDQ VLQSFAELAA TYNTVPREQ
Yeasttreha	VQEAALQTYG	HKGFDAKLFV DMSLRESLSE TVEAFNKLPR VVNGSISKS D
	LTIAKSFGRH	QIFLDEARIN ENPVNRLSRL INTQF...
Ecoli2treh	151	200
Ecolitreha	LRKFVENHFW	L... P EVYSSEYVSD PQN.SLKEHI
Bommotreha	LRHVFVNVNFT	L... P KE.GEKYVPP EGO.SLREHI
Tenmotreha	LQEFFFVVDFF	E.TSELEEWK PDDHK..ENP P.FLAKIRDQ GFR.EFAKAL
Rabbitreha	LMKFVSDNFK	Q.ENEFESWT PTDFT..DNP T.LLSRIEDEK TIR.QFAQDL
Potatotreha	LEKVFQEHFQ	AVGQELESWT PGDWK..ESP Q.FLQKISDP KLR.AWAEQL
Yeasttreha	LDGFIGSYLS	SPDKDLVYVE PMDFV..AEP EGFLPKVKNS EVR.AWALEV
	LNNVGEIAKD	TKIDTPGAKN PRIYVPYDCP EQYEFYVQAS QMHPSLKLEV
Ecoli2treh	201	250
Ecolitreha	DQLWPVLTR	PQDHI...P WSSLLALPQ...
Bommotreha	DGLWPVLTRS	TENTE...K WDSLLPLPE...
Tenmotreha	NDIWPTLARR	QSSLVPMTH...
Rabbitreha	VKIWPTLARK	HYSLLPVDN...
Potatotreha	HLLWKKLGKK	IKPEVLSQPE RFSLIYSQH...
Yeasttreha	HSLWKNLSRK	VADHVLEKPE LYTLLPLKN...
	EYLPKKITAE	YVKSVDNTPG LLALAMEEHF NPSTGEKTLI GYPYAVPGGR
Ecoli2treh	251	300
Ecolitreha	FSETYYWDSY	FTMLGLAESG REDLLKCMAD NFAWMIENYG HIPNGNRTYY
Bommotreha	FREVYYWDSY	FTMLGLAESG HWDKVADMVA NFAHEIDTYG HIPNGNRSYY
Tenmotreha	FKEIYYWDAY	WIIEGLLITD MTETAKMIE NLIELLYKFG HIPNGSRWYY
Rabbitreha	FTEFYYWDSY	WIVEGLLLSD MHETVRGMLD NFLSIVEKYG FIPNGARVFY
Potatotreha	FVEFYYWDSY	WVMEGLLLSE MAETVKGMLQ NFSDLVATAYG HIPNGGRVYY
Yeasttreha	FKEVYYWDSY	WVIRGLLASK MYETAKGIVT NLVSLIDQFG YVNLNGARVYY
	FNELYGWD SY	MMALGLLEAN KTDVARGMVE HFIFEINHYG KTI.NANRSYY

FIG. 4A



5 / 8

	301	350
Ecoli2treh	LSRSQPPVFA LMVELFEEDG VR.....GA .. RRYLDHLK MEYAFWMDGA	
Ecolitreha	LSRSQPPFFA LMVELLAQHE GD.....AA .. LKQYLPQMQ KEYAIVMDGV	
Bommotreha	QERSQPPLLA AMIKLYYEKT KD.....IE FIRKYISALE KELEYWLDT.	
Tenmotreha	LNRSQPPLLT LMVSLYVSAT ND.....ME WLAKNIRTID TELRFWLNN.	
Rabbitreha	LQRSQPPLLT LMMDRYVAHT GD.....LA FLRENINETLA LELEDFWAEN.	
Potatotreha	SNRSQPPVLA TMIVDIFNQT GD.....LN LVRRSLPALL KENHFWNSGI	
Yeasttreha	LCRSQPPFLT EMALVVFKKL GGRSNPDAVD LLKRAFQASI KEYKIVWTAS	
	351	400
Ecoli2treh	ESLIPNQAYR HVVRMPDGSL LNRYWDDRTD PRDESWLEDV ETAK.HSG.R	
Ecolitreha	ENLQAGQQEK RVVKLQDGTL LNRYWDDRTD PRPESWVEDI ATAKSNPN.R	
Bommotreha	.HLIA..... FNKDRVXT LLRYYIPSAG PRPESYYEDY ELAQKLDKNT	
Tenmotreha	.RLVD..... VVKDGIVYK LAQVNSNSGS PRPESYYEDV TTASVFSDER	
Rabbitreha	.RTIS..... VSSGGNSHT LNRYHVPYGG PRPESYSKDT ELAHTLPEG.	
Potatotreha	HKVTI..... QDAQGSNHS LSRYYAMWNK PRPESSTIDS ETASVLPNIC	
Yeasttreha	PRL..... DPETG LSRYHPNGLG IPPETESDHF DTV.LLPYAS	
	401	450
Ecoli2treh	PPNEVYRDLR AGAASGW... .DYSSRWL.. RDTGRLA SIRTTQFIP.	
Ecolitreha	PATEIYRDLR SAAASGW... .DFSSRWM.. DNPQQLN TLRTTSIVP.	
Bommotreha	DPNDIYADLK SAAESGW... .DFSTRWFIS ESGDNGNLNT NLNTKNVIP.	
Tenmotreha	DKAELYMDLK SAAESGW... .DFSSRWIVD EYGGTRGNLS ALHTRRIIP.	
Rabbitreha	SWETLWAELK AGAESGW... .DFSSRWLVG .. SPNPDSLQ SIRTSKLVP.	
Potatotreha	EKRELYRELA SAAESGW... .DFSSRWM.. SNGSDLT TTSTTSILP.	
Yeasttreha	KHGVTLDEFK QLYNDGKIKE PKLDEFFLHD RGVRESGHDT TYRFEVGVCAY	
	451	500
Ecoli2treh	... IDLNAFL FKLESAIANI SALKGEKE.. TE ALFRQKASAR	
Ecolitreha	... VDLNSLM FKMEKILARA SKAAGDNA.. MA NQYETLANAR	
Bommotreha	... VDLNAIF AGALQITANF QAILKNPR.. RA AHWGYMAEQW	
Tenmotreha	... VDLNAFL CQAFQKLSEF YOTLGDYP.. NA TFWSKLVKIW	
Rabbitreha	... VDLNAFL CQAEELLSGF YSRLGNES.. QA TKYRNLRAQR	
Potatotreha	... VDLNAFL LKMEEDIAFL ANLVGESS.. TA SHFTEAAQNR	
Yeasttreha	LATIDLNSLL YKYEIDIADF IKEFCDDKYE DPLDHSITTS AMWKEMAKIR	
	501	550
Ecoli2treh	RDAVNRYLWD DENGIVYRDYD WRREQL..... A LFSAAAIVPL	
Ecolitreha	QKGIEKYLWN DQQGQWYADYD LKSHKV..... RN QLTAAALFPL	
Bommotreha	RSSIEQALWD EEDGVWHDYD ILNNK..... PRR YFYTSNLAPL	
Tenmotreha	QHSIEMVHYN RDDGIWYDWD NELSQ..... HRR MFFPSNFAPL	
Rabbitreha	IAALTALLWD EDKGAWFDYD LENQK..... KNH EFYPSNLTPL	
Potatotreha	QKAINCIFWN AEMGQWLDYW LTNSDTSEDI YKWEDLHQNK KSFASNFVPL	
Yeasttreha	QEKITKYMWD DESGFFF DYN TKIKH..... RTS YESATTFWAL	
	551	600
Ecoli2treh	YVGMANHEQA DRLANAVRSR LLT..... P GG... ILASE YETGEQWDKP	
Ecolitreha	YVNAAAKDR A NMATATKTH LLQ..... P GG... LNTTS VKSGQQWDAP	
Bommotreha	WMNAVEKPFL AKH GARVLEY LHE SQALEYP GG... VPVSL VNSGEQWDFP	
Tenmotreha	WSETFD S RNA E ILGEMAAEY FITQNMMDYH GG... IPTSL SHTGEQWDYP	
Rabbitreha	WAGCFSDPAI A... DKA LOY LQDSQILNHR HG... IPTSL QNTGQQWDFP	
Potatotreha	WTE. ISCSDN NITTQKVQ S LMSSGLLQ. P AG... IAMTL SNTGQQWDFP	
Yeasttreha	WAGLATKEQA QKMVEKALPK LEMLGGLAAC TERSRGPI SI SRPIRQWDYP	

F I G. 4B



	601	650
Ecoli2treh	NGWAPLQWMA IQGFKMYG..	DDLLGDEIA RSWLKTVNQF YLE.QHKLIE
Ecolitreha	NGWAPLQWVA TEGLQNYG..	QKEVAMDIS WHFLTNVQHT YDR.EKKLVE
Bommotreha	NAWPPEVSIV VTAIQNIGSE	ESSKLAKELA QWVVRACKSG FTE.KKQMFE
Tenmotreha	NAWPPMQSII VMGLDKSGSY	RAKQLARELA RRWVKANLIG FRQ.TGEMFE
Rabbitreha	NAWAPLQDLV IRGLAKPSA	RTQEVAFQLA QNWIRTNFDV YSQ.RSAMYE
Potatotreha	NGWPPLQHII IEGLLRSGLE	EARTLAKDIA IRWLRTNYVT YKK.TGAMYE
Yeasttreha	FGWAPHQILA WEGLRSYGYL	FTVNRLA YRWLFMMTKA FVDYNGIVVE
	651	700
Ecoli2treh	KYHIADGVPR EGGGGEYPLQ	D GFGWTNG... VVRRLIGLYG
Ecolitreha	KYDVSTTGT. GGGGGEYPLQ	D GFGWTNG... VTLKMLDLIC
Bommotreha	KYDALNAGKY .GGGGGEYTVQ	D GFGWSNG... VVLEFLDRYG
Tenmotreha	KYNVEVPQON .GGGGGEYVVQ	S GFGWTNG... VVLEFINQFF
Rabbitreha	KYDISNA.QP .GGGGGEYEVQ	E GFGWTNG... VALMLLDRYG
Potatotreha	KYDVTKCGAY .GGGGGEYMSQ	T GFGWSNG... VVLALLEEFG
Yeasttreha	KYDVTRGTDP HRVEAEYGNQ GADFKGAATE GFGWVNARYI LGLKYMNSYE	
	701	732
Ecoli2treh	EP.....	
Ecolitreha	PKEQPCDNVP ATRPTVKSAT TQPSTKEAQP TP	
Bommotreha	AVLTSVDSVD ASANNGQSNE ESETDSKEK. ..	
Tenmotreha	TT.....	

F I G. 4C

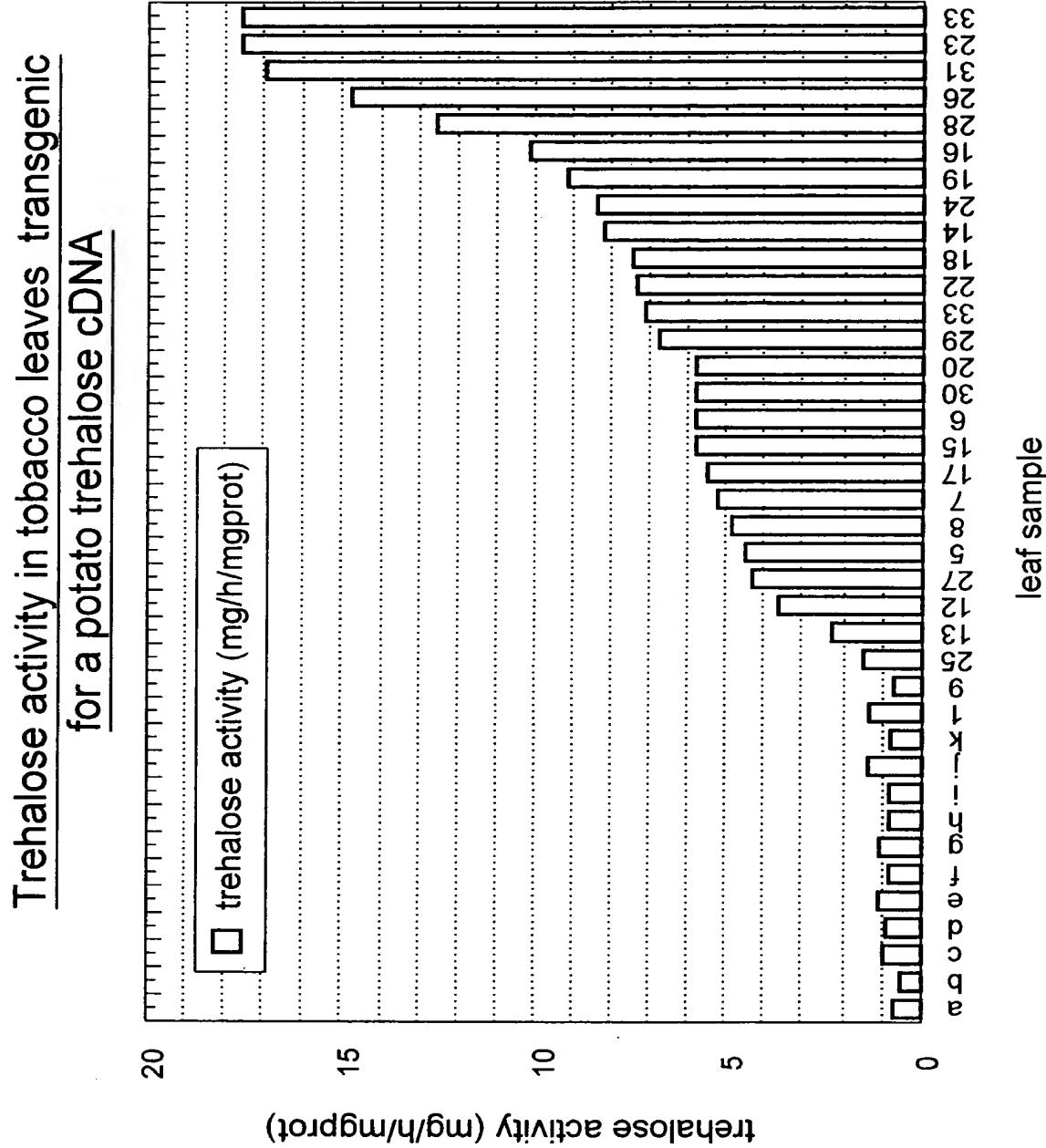


FIG. 5



8 / 8

Trehalose accumulation in microtubes

trehalose
mg.g⁻¹ fresh weight

pMOG1027 (845-11)		pMOG1027 (845-22)		pMOG1027 (845-28)	
9a	0.08	7a	0.02	3a	0.04
9b	0.21	7b	0.01	3b	0.15
11a	0.01	9a	0.02	15a	0.4
11b	0	9b	0.02	15b	ND
...		12a	0.09	18a	0
...		12b	0	18b	0.2
...		15a	0	26a	0.12
...		15b	0.01	26b	0.22
...		32a	0.01	27a	0.02
...		32b	0	27b	0.01
...		34a	0.01	31a	0.2
...		34b	0.01	31b	0.1
...		36a	0.01	34a	0.48
...		36b	0	34b	0.75
				38a	0.08
				38b	0.12
N= 25		N= 30		N= 29	

F I G. 6